

## Claims

1. A particulate material made by a spray process has at least 80%, preferably at least 90% and more especially at least 95% of the particles of the same

5 morphology, said particulate material having a mono-dispersivity index of not more than 1.2, preferably not more than 1.0 and more especially not more than 0.6.

10 2. A particulate material made by a spray process has at least 80%, preferably at least 90% and more especially at least 95% of the particles of the same

morphology, said particles having at least two components, a first component being at least one matrix material and a second component being at least one active ingredient retained by said first component, and said particulate material having a mono-dispersivity index of not more than 1.2, preferably not more than 1.0 and more especially not more than 0.6.

15 3. A particulate material according to claim 1 or claim 2 in which the particles have a morphology selected from hollow sphere, roughly spherical, cenospheres and packed porous network morphologies.

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4. A particulate material according to any one of the preceding claims in which the particles have a mono-dispersivity index of greater than 0.05 and is more typically greater than 0.1, and is usually greater than 0.2.

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5. A particulate material according to any one of the preceding claims in comprising particles that are substantially all of the same morphology

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6. A particulate material according to any one of the preceding claims comprising particles having a volume mean size in the range 50  $\mu\text{m}$  to 3000  $\mu\text{m}$ .

7. A particulate material according to claim 6 comprising particles having a mean size in the range 100  $\mu\text{m}$  to 2000  $\mu\text{m}$  and more especially in the range 100  $\mu\text{m}$  to 1000  $\mu\text{m}$ .

8. A particulate material according to claim 6 or claim 7 comprising particles having a mean size in the range 100  $\mu\text{m}$  to 600  $\mu\text{m}$ , more especially 200  $\mu\text{m}$  to 500  $\mu\text{m}$ .
- 5 9. A particulate material according to any one of the preceding claims which is essentially dust free.
10. A particulate material according to any one of the preceding claims which essentially does not contain any particles having a volume mean size less than 20  $\mu\text{m}$ ; more preferably essentially does not contain any particles having sizes less than 50  $\mu\text{m}$  and especially essentially does not contain any particles having a volume mean size less than 80  $\mu\text{m}$ .
15. A particulate material according to any one of the preceding claims in which the particles are biocompatible.
20. A particulate material according to claim 11 in which the particles or the first component thereof are selected from sugars, polysaccharides, starches and glycerides, especially di- and tri-glycerides.
13. A particulate material according to any one of the preceding claims in which the material from which the particles or the first component thereof is made is film forming.
25. 14. A particulate material according to claim 13 in which the first component is selected from polyvinyl acetate and ethylene vinyl acetate copolymers including mixture thereof with each other or with other materials.
30. 15. A particulate material according to claim 2 or according to any one of the preceding claims dependent on claim 2 in which the first component forms a material network that has interstices in which the second component is held.
35. 16. A particulate material according to claim 2 or according to any one of the preceding claims dependent on claim 2 in which the second component is selected from materials that are compatible with the first component.

17. A particulate material according to claim 2 or according to any one of the preceding claims dependent on claim 2 in which the second component of the particles is a binary or higher order particle.
- 5 18. A particulate material according to claim 2 or according to any one of the preceding claims dependent on claim 2 in which the second component comprises between 25 wt% to 55 wt%, more preferably between 30 wt% to 50 wt% of the particles.
- 10 19. A particulate material according to claim 2 or according to any one of the preceding claims dependent on claim 2 which comprises the first component being at least one matrix material selected from sugars, polysaccharides, starches and glycerides, especially di- and tri-glycerides, and the second component being at least one active ingredient retained by said first component and being an organoleptic.
- 15 20. A particulate material according to claim 2 or according to any one of the preceding claims dependent on claim 2 which comprises the first component being at least one film-forming polymeric matrix material.
- 20 21. A method of making a particulate material according to any one of the preceding claims comprising projecting from a body of liquid comprising a precursor formulation for said particulate material an array of mutually divergent jets, disturbing the jets to cause break up thereof into streams of droplets of narrow size distribution, contacting the array of resulting droplet streams with a gas flow to reduce coalescence of the droplets in each stream and causing or allowing the droplets to solidify at least partially in flight, wherein said precursor formulation has a density in the range 800 kg/m<sup>3</sup> to 1700 kg/m<sup>3</sup>, more preferably 1000 kg/m<sup>3</sup> to 1700 kg/m<sup>3</sup>, a viscosity in the range 0.01 Pa.s to 1 Pa.s, more preferably in the range 0.06 Pa.s to 1 Pa.s and a surface tension in the range 0.01 N/m to 0.72 N/m, more preferably 0.02 N/m to 0.72 N/m and an Ohnesorge Number in the range 0.005 to 2.5, more especially in the range 0.008 to 1 and wherein the liquid jets have a Reynolds Number (Rej) in the range 10 to 5000, more especially in the range 30 35 10 to 2000.

22. A method according to claim 21 in which the divergent jets are disturbed to cause break up thereof by acoustic vibration.
- 5 23. A method according to claim 22 in which the Weber frequency (fw) used for droplet generation is in the range 0.5 kHz to 100 kHz.
24. A method according to any one of claims 21 to 23 in which the flow in the jets is laminar.
- 10 25. A method according to any one of claims 21 to 24 in which, when the particles comprise first and second components, the first component is at least one matrix material selected from sugars, polysaccharides, starches and glycerides, especially di- and tri-glycerides and the method comprises the liquid jets having a Rej in the range 10 to 5000 and the drops are generated using an fw in the range 2 kHz to 15 kHz.
- 15 26. A method according to any one of claims 21 to 25 in which, when the particles comprise first and second components, the first component is at least one film-forming polymeric matrix material and the method comprises the liquid jets having a Rej in the range 10 to 100 and the drops are generated using an fw in the range 10 kHz to 100 kHz.
- 20 27. A method according to any one of claims 21 to 25 wherein a material network is formed comprises the liquid jets having a Rej in the range 10 to 1000 and the drops are generated using an fw in the range 2 kHz to 50 kHz.
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